Static Magnetic Field Safety

An IH Group staff, Jennifer Williams, responded to request from Clyde Mounts, EES, to perform static magnetic field surveys on the HPA power supplies. The results indicated the cabinets have magnetic fields that exceed those allowable for employees with medical implants (5 gauss). The back of the cabinet was not measured, so another survey is required. Also, areas in the Test Lab and FEL will be surveyed. Additionally, draft signs for the HPA racks were given to the Operations group for approval prior to posting.

Heat Gun Left on in Offline Cleanroom (Surface Science Lab)

A heat gun was left plugged in and was most likely accidentally turned on by being kicked/bumped by subcontractor personnel working in the area. The heat gun should not have been left plugged in while not in use. Cleanrooms present a higher risk of fire than normal work area spaces. This particular heat gun element can reach temperatures of 343degrees Celsius with a life expectancy of 2,000 hours. Additionally, the safety warden had not properly prepared the Surface Science Lab prior to the subcontractor entry to work on the lighting. The subcontractor personnel were squeezing ladders and themselves into areas that were not adequate for work. The subcontractor tasks of moving wires and racks should have been better coordinated with the system owner or the area safety warden to allow adequate egress within the affected work areas. The subcontractor, although eager to satisfy the customer, should not have performed work that involved the moving of such items without further communication with the area safety warden.

SOP for Electro Polishing (EP) Cabinet

Some really good solutions directed at resolving conflict over administrative vs. engineering solutions for hazard analysis of EP Cabinet operations were developed this month. They include:

- Quick disconnects for DC power supply that will eliminate the need to ground capacitors every time the cabinet door is opened.
- Replacing the acid pump for the system and adding a pressure relief device to prevent the cavity from over pressurizing.
- Ordering a handwashing sink for the room that is foot actuated. Sinks in other chemistry areas will also be upgraded with this feature.
- Resolving debates over the procedure for acid mixing regarding the uncertainty about whether the acid should be mixed in the Acid Transfer Building or in the EP cabinet itself. The procedure involves spiking sulfuric acid with hydrofluoric acid. Pilot tests in the R&D Chemroom indicate a significant temperature rise. The decision was made to use the EP cabinet to mix the acid because the EP cabinet exhausts to a scrubber, and has a chiller for heat exchange to help control temperature.

Test Lab Water Woes

Complaints of a formaldehyde odor associated with the DI water raised concerns for parts cleaners in the R&D Chemroom this month. The DI water system was shut down and sanitized for the first time in 10 years of operation.

Eyewashes and Safety Showers in Critical Areas Still Not on CANS

The IH Group staff tested the eyewashes/safety showers in R&D Chemroom, Electro Polish (EP) room, and Production Chemistry Room. They noted that the EP room shower, as well as one of the R&D Chemroom units, are not activating the guard alarm and the required personnel were not alerted by pager. Dave Kausch, Facilities Management, was notified of the problems. Towards the end of the month, the R&D Chemroom and Production Chemroom were retested and functioned appropriately. But, the EP room alarm still was not programmed correctly. Additionally at the end of March, IH staff learned that the shower in the acid transfer building was also not on CANS.

Lead Concern with 45 MeV Dump Move

The 45 MeV beam dump was relocated to the South Linac to support the energy recovery experiment. The staff was using the dump lead brick shielding as a work table. The bricks tested positive for removable lead. The lead bricks were covered with plastic and a hazcom sign posted on the dump.

Safety Signs

In support of the down, the IH Group responded to the largest number of requests for signs since purchasing their sign making software. Requests ranged from exclusion signs to ODH rating change signs to electrical breaker labels. All ODH signs were updated and areas that become ODH2 in a power failure are now marked appropriately. All ODH0 signs now comply with ANSI requirements for lettering and color.

Shipping and Receiving is on the Ball with Safety

The IH group staff was called to the Blue Crab storage facility to investigate two items:

- Capacitor bank not shorted out in storage
- Compressed gas cylinders.

The IH staff called Bob Rice to check the capacitors and apply the short wire. The IH staff verified that the compressed gas cylinders were empty and released them for disposal in normal trash.

Bldg. 98 Propane Gas Heater Followup

On January 28, 2003, employees working in the Beam Switch Yard Service Building complained of a strong odor that, upon investigation, we learned came from a 50,000 BTU/hr propane heater in use in the adjacent Building 98 weld shop. The gas heater was removed from service and sent out for QC check. Results of the QC check received this month showed that the gas heater had an o ring that was leaking propane. The service center representative also cleaned the nozzle and recommended that the maintenance schedule should consist of an annual unit checkout at the start of the heating system. This information, along with an operator's manual for the unit, was given to the line manager.

SOP for Operation of High Voltage Gun in Injector Test Cave

The Standard Operating Procedure for the high voltage gun in the injector test cave (ITC) was completed. The main hazard mitigation sets up the ITC as an exclusion area when the high voltage is energized. Prior to entry, the power must be secured with administrative LOTO. Anyone required to enter the cave must be LOTO qualified. Since the ITC is now partitioned into two sections, the present personnel safety system (PSS) controls only one side of the cave during access. Personnel safety for the other side is controlled temporarily under administrative LOTO until the PSS upgrade is completed.

Cryogenics and FEL Experimental Safety Assessment Form (ESAF)

A William and Mary physicist prepared an FEL ESAF in which he identified the need to use liquid helium, in a 100 l dewar. An ODH assessment is necessary and it will also be necessary to vent the dewar's pressure reliefs out of the lab. The lab physicist and Laser Systems Supervisor, Steve Benson, were both notified that any alterations to the dewar relief devices must be approved and engineered by a Cryogenics Engineer.

Laser incident

A William and Mary (W&M) physicist brought several unqualified staff into Lab 6 of the FEL. An alert FEL staff member recognized the problem and notified the Laser System Supervisor. The FEL Line Management met with the W&M physicist to go over the following corrective actions:

- Retraining the physicist
- Notable Event report
- Questions will be added to laser user qualification tests on criteria to become an authorized user that specifically address the visitor requirements

Wrong Chemicals for the Jobs

Uniflow, a degreaser used to clean up machine shop equipment, was pulled from the market. Ronnie Smith of the EEL Machine Shop, submitted several replacement chemicals to the IH group for evaluation. This was good preventive work on Ronnie's part, because the replacement chemicals contained chlorinated solvents, which are prohibited from the IH and the Vacuum Group viewpoints. A second incident involved a FEL staff who planned to use a stripper product on magnets. The individual purchased the stripper from a local store with his own funds. To his credit, he submitted the Material Safety Data Sheet to the IH Group. The stripping agent contained methyl chloroform, so the individual was notified not to use this chemical. Since he purchased the stripper with personal funds, he took responsibility to remove the stripper from the JLab site.

CMTF Sweep Key Replacement

CMTF users broke the sweep key by pulling on the key while it was captured and broke off the detent tab. Safety Systems Group provided another key after the tumblers were realigned.

Smoke in Test Lab Due to Bakeout

EH&S staff were called to investigate smoke in the TL addition. The source of the smoke was a vacuum bakeout. Vacuum staff terminated the bakeout and followed up with discussions regarding ventilation and bakeout techniques that may minimize smoke production. They are also exploring fire hazards with high temperature bakeouts in this area and evaluating the need for preparing a fire hazard work permit authorizing bakeout tasks.

EH&S Tracking System "Hiccups" Due to Computer Center Upgrades

The Computer Center's update to the Windows JLab domain caused some temporary password authentication problems for the EH&S Tracking System. The system script used for password authentication took advantage of the fact that LANMAN authentication was still enabled on Jlabn1 to support Windows95/98 clients. But, after the Computer Center upgrade, Windows 95/98 was no longer able to join the JLab domain. Theo Larrieu, Ops Software Group, wrote a new script the Friday before the upgrade took place that does CUE authentication for web page access. Eventually, we will authenticate against the RADIUS server that the dial-in modem pool uses. In the meantime, our current fix should be good enough until the Radius server is fully functional. Our many thanks go to the Ops Software Group for anticipating and resolving the problem without interruption to our system users.

Chronic, But Selective, Password Authentication Issue Resolved

A handful of EH&S Tracking System users have not been able to authenticate their JLab CUE password since the tracking system came online. All but one of these individuals were able to use their UNIX password successfully. The one individual did not have a UNIX password but needed "Read Only" access to the tracking system. Recently, after changing passwords as part of the Computer Center security procedure, several new persons whose former CUE passwords worked, could not use their new CUE passwords. We traced the problem to passwords containing certain unix shell metacharacters including '\$' and ';' that weren't being escaped properly when passed from the apache web server to the script that does actual authentication against the JLab domain. This bug has been fixed, the module recompiled, and apache restarted everywhere. Thanks go again to the Ops Software Group for helping us locate and fix the problem!

Lab Director Reviews EH&S Tracking System

EH&S T3 Group demonstrated the EH&S Tracking System for Christoph this month. Christoph was impressed with the system, its ease of use, and broad application. Later in the month, Christoph accompanied us on a follow up inspection of the FEL and was able to see how the tracking system has been incorporated into our EH&S inspection process.

EES Lift Gate Failure

The lift gate on the EES White Dodge truck failed on March 13, 2003 {see EHSLOG entry 1139070]. The gate fell within inches of an EES employee's leg. The employee reported the event to the EH&S Department and Facilities Management. Two weeks later, the truck was still in use with the lift gate tied shut. A follow up check with Chris Burrows, who is responsible for GSA vehicle maintenance contract, as well as the EES

supervisor, revealed that neither was aware of the event. The lift gate was tagged out and the keys held by an EES middle manager until the lift gate is repaired. EES staff, in coordination with the JLab Material Handling Representative (MSHR), was investigating the failure mode and will identify an appropriate make and model for a replacement lift gate. Facilities Management will cover the cost of this particular lift gate replacement since we are paying a surcharge to GSA for the current lift gate. Lessons learned regarding this event will be distributed once the failure mode is confirmed.

Facilities Services in Coordination with RadCon

N2 charging system valve work was completed in B91 and B95. Work continues on the Hall A dump main cooling pump, but we are still waiting on a critical part for a new pump. The B95 leaky H2 sensors have been removed and new sensors received. Old sensors have been returned to the factory (after RadCon survey) to determine the failure mode. Lastly, RadCon authorized aluminum replacement parts for use up to one year.

Beam Loss Ion Chambers Control Circuits

Dan Dotson, Doug Curry, and Mike Epps are working on a control circuit for the beam loss ion chambers that will allow remote function checks, and range and alarm set-point changes. This will cut down on accesses to adjust these critical machine protection devices.

2002 Fourth Quarter and Annual Environmental Summary

You may find a copy of "Environmental Radiation Resulting from the Experimental Program at JLab" at http://www.jlab.org/accel/RadCon/RCGnotes/RCG_Note_02-03.pdf accessible from any web browser with a standard PDF file reader plugin.

CEBAF PSS Activities

PSS certification is complete. The link between the south linac PLC and remote input/output (I/O) has been changed from hard wire to fiber optics. (Last summer a lightning strike on the copper line blew out several I/O modules.). The ER Magnet box supply had an internal jumper of one of the two PSS chains that was bypassed in the supply. The supply is not a critical device and was not connected to the magnet in the tunnel. Up until this time, the functional test of box supplies did not include A/B separation tests of the magnets due to the difficulty of causing a meaningful trip of a supply without reducing the integrity of the PSS. A method was developed that separately disconnects the A or B permit to the box supply that will be used until a better method can be found. UPSs are being replaced in the linacs. Old style UPSs were sensitive to ground and line transients. There were several instances of problems with run safe 20. We determined that the problem was most likely not the run/safe. Personnel were working on the gun HV drop switch, which has an ON/OFF indication back to the PSS. When the north linac was in an access mode and the indication to the PSS was disconnected, the PSS dropped.

SAF141 Safety System Operator Training

CIS is now updated to show status of SAF141 Safety System Operator Training. All operators and SSG personnel records have been updated. The clock is now ticking and SSOs must re-qualify every two years. A similar change will be implemented for SAF142 LD SSO in the near future.

Stop Work at EEL Shed Construction Site

The Material Handling Safety Representative stopped work on the shed construction activities in the EEL parking lot. Subontractors were using a front-end loader as a crane. While this may be a common practice outside the lab, it is prohibited here. The Admin. Div. EHS Officer and SOTR were contacted for follow up with the subcontractor.

New Site Office Manager Welcome

The new Site Office Manager, Jim Turi, toured the accelerator site this month. The EH&S department head accompanied him on this tour. Jim also participated in a quarterly inspection of the FEL and contributed a couple safety observations regarding emergency postings and access to an emergency phone in the FEL vault that is now blocked since the upgrade's magnet installation. Thanks Jim, and welcome!

USPAS Safety Systems Course

Kelly Mahoney and Sandy Prior were invited to teach the Safety Systems/Systems Safety course again at the US Particle Accelerator School in CY 2004. The school's director, Helmut Wiedemann, extended the invitation and asked that they investigate possibility of offering certification and/or maintenance points through related professional organizations as part of the course content.

PSS Display Computer Problems

The PSS display computer was upgraded to a new model. Unfortunately, there were some incompatibilities with the new model and some of the internal hardware/software. The Safety Systems Group had to restore the original computer that had crashed earlier. The new computer was supposed to solve problems with the auto announcement software.

CEBAF ODH System Activities

The Safety Systems staff tested the new ODH alarms in the arcs. ODH alarms will now trigger horns and lights up to the 90 degree point of the arcs both above and below ground. The Linac cells have been calibrated. They also installed a new dome sampling system in Hall A. This one should be more reliable than the old system. Work is also underway to identify a replacement ODH head for CEBAF, minimally the linacs. Tests of barometrically compensated heads were positive. The expected cost is between \$40 and \$120k depending on how many heads are changed.

FEL ODH System Upgrade

The Safety Systems Group (SSG) is starting work on the FEL ODH alarm upgrade. A meeting is planned to re-verify the desired alarm/horn locations.

911 Response Poster for Accelerator Site

EH&S T3 developed a 911 response poster for the Ops Fire Team. In the process, we uncovered some items that were not previously known to the accelerator operators, the most significant of which is that dialing 269-4444 from an off site or cellular phone will not connect you to the JLab guards. It will, instead, connect you to the home of an unknown Newport News resident. Offsite and cellular phone callers must dial 269-5822 to report emergencies to the JLab infrastructure. The poster was precipitated by the desire to clarify when to call 911 for police, ambulance, and fire truck assistance, and identify types of events where dialing 911 is not appropriate. Such events include theft, damaged property, or the need for an after-hours escort. Thanks to the Electronics Media group and their student intern, John Thomas, for the help they provided with the poster development.

EH&S Inspections Conducted

Seventy findings were noted across the following areas inspected during March 2003:

Test Lab - Injector Test Cave

Test Lab - Vacuum Furnace and Brazing Rooms

Test Lab - Safety Lab (Bldg. 35)

Test Lab – EBW

RadCon Equipment Maintenance - T52B

Radcon - T52A

Radcon – 52

Radcon – 54

Test Lab - Survey Lab

Test Lab Addition – Vacuum Group

ARC: Space Leased by SURA

EEL / Stockroom (Rm. 108)

Test Lab - R & D Clean Room

Accelerator Site - Bldg. 85 (MCC)

Free Electron Laser (FEL) - Bldg. 18

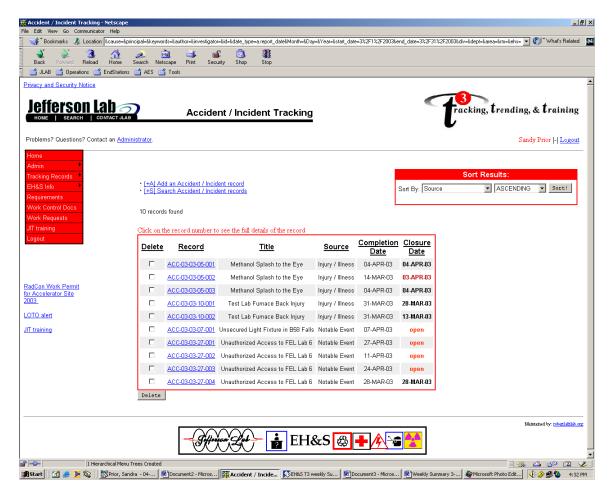
Of the 70 findings, 29 are closed and 14 of the remaining open items are overdue.

New EH&S Coach

The EH&S Department hired a new EH&S Coach, Ned Walker. Ned has many years of industrial safety experience. His primary task will be to assist Accelerator Division line managers with work planning by coaching them to anticipate, recognize, and reduce safety risks in their work methods and procedures. Ned is assigned to the Industrial Safety Group, with Eric Hanson as his supervisor. Ned's first day at the lab will be April 7, 2003.

March Accident/Incidents

The following is a list of accelerator accidents/incidents that occurred during March 2003. The reports of these events can be viewed online by searching the EH&S Tracking System under the "Accident/Incidents" section and selecting a date range from March 1, 2003 through March 31, 2003. You then mouse click on the desired record number. This will bring up the full record that includes a web hyperlink to the report.



Other events whose reports are not yet completed or posted are:

Notable Event - Smoke in Test Lab Vacuum Shop

Notable Event – EES Lift Gate Failure

Notable Event – Helios Equipment Fall from Truck at Blue Crab

Reportable Accident – Ankle Injury to Test Lab Employee

Physics Division EH&S Activities March 2003

For the month – The Hall A Group began installation of the first of two septum magnets. The magnet was installed, and field tested and commissioned for use in upcoming experiments. The Hall B Group conducted drift chamber maintenance on the CEBAF Large Acceptance Spectrometer (CLAS) and readied equipment for continuance of experiment: e1-f.

The Hall C Group began upgrading hall base equipment along with installation of experimental apparatus for upcoming experiments.

The EH&S Group priority was oversight and assistance as required.

Experimental Readiness and Work Control Documents

Reference Jefferson Lab EH&S Manual Chapter 3120 – Experimental Review, and Chapter 3320 - Temporary Work Permits.

There were two new Temporary Operational Safety Procedures given final approval.

PHY-03-003 "Phase (1) Testing of the Septum Magnet"
Hall A Group / Hall A

PHY-03-004 "Testing of a Hyper Kaon Spectrometer and ENGE Drift Chamber" Hal C Group / Bldg. 90, Room 125.

There was no new Experiment Readiness Certificates or Operational Safety Procedures.

Inspections

Reference Jefferson Lab EH&S Manual Chapter 5100 - Internal Inspections.

Eight scheduled formal inspections identified one new recordable action item; one item remains open from a previous month. Along with Physics Division EH&S staff, DSO, Dennis Skopik, Accelerator Division Engineering Head, Will Oren, Jlab Radiation Control Group Head, Bob May, Office of Assessment, EH&S Reporting Manager, Carter Ficklen, Area Safety Wardens, Walter Kellner, and Doug Tilles, Ed Folts assisted in a least one of the inspection of the experimental halls.

The new DOE CEBAF Site Office Manager, Jim Turi and DOE CSO Safety and Security Manger, Barbara Morgan, assisted on one inspection of the experimental halls. Also assisting on at least one inspection of the experimental halls were Accelerator Division Operations Group Hall Liaisons: Zafer Kursun – Hall A, Tim Southern – Hall B, and Yan Wang – Hall C.

The Administration Division EH&S Officer, John Kelly, and the Area Safety Warden, Brian Kross, assisted division EH&S staff on at least one inspection of the Experimental Equipment Laboratory.



EH&S Reporting Activities for March 2003

As of March 9th, Jefferson Lab had achieved <u>213</u> consecutive days without a lost-time injury. On March 10th, a Test Lab technician suffered a back injury with one lost workday. On March 19th, a Director's Office staff member had a slip and fall lost workday injury, and a Test Lab worker had a March 24th injury climbing stairs that resulted in one lost workday.

These three injuries ended a period of over six months in which JLab had only experienced a January 2003 recordable eye injury to a subcontract worker. The lab record is <u>455</u> consecutive days without a lost-time injury.

- ➤ Evaluation and scoring of the FY 2003 midyear EH&S performance indicators for the SURA/DOE contract was completed by EH&S Reporting (see attachment). Jefferson Lab FY 2003 midyear results indicated an overall score of 97.6. The score is in the "Outstanding" score category in the selected EH&S areas covered by the DOE/SURA contract.
- ➤ EH&S Reporting reviewed guidance information for the JLab submittal for the DOE FY 2005 ES&H Budget Formulation Submission (formerly the DOE ES&H Management Plan). Oak Ridge Operations Office budget staff provided the information.
- ➤ EH&S Reporting prepared the annual JLab response to the DOE Environmental Liability data call. The previously identified accelerator tunnel and end station areas were reviewed and found to still be appropriate for the 2003 response.
- ➤ An additional EH&S Manual area, special (or nontraditional) storage battery use was researched by EH&S Reporting. This area was noted during a previous Work Smart Standards review as one that was appropriate for EH&S Manual coverage. The topic is proposed to be covered by a technical appendix to Chapter 6210, *General Electrical Safety*.
- ➤ EH&S Reporting solicited information from the other Office of Science (SC) laboratories on utility location procedures for wall and floor penetrations. This activity was in response to a JLab Electrical Safety Subcommittee request. There was an excellent response as five SC laboratories provided site-specific information.
- ➤ The March 10th discovery of the CANS computer being inoperative for several days was reviewed for reporting under the Price-Anderson Amendments Act (PAAA). The CANS computer problem allowed one staff member with recently expired radiation training to access the accelerator site. The review indicated that this event was not immediately reportable; however, this event was internally logged for tracking as a programmatic failure or trend under 10 CFR 835, the PAAA worker radiation protection rulemaking.

- ➤ A joint Office of Assessment effort is underway to prepare an SPCC training course for all staff and subcontractors involved with oil or oil products. This training should be available for beta testing soon.
- ➤ EH&S reporting provided a hazardous waste generation status update for DOE and DEQ information. This was in regards to the startup of the Accelerator Division's new electropolish cabinet that may result in the Lab exceeding our current hazardous waste generation quantity limit.

> Work Smart Standards (WSS) Set

- o Proposed 2002 changes to the WSS Set, including separating powered industrial trucks and golf cars into their own hazard issues, have entered the WSS change process.
- o EH&S Reporting is working with the Policy and Manuals Group to ensure new or modified hazards or standards become addressed appropriately in the EH&S Manual.

➤ National Environmental Policy Act (NEPA)

- o CEBAF and FEL Upgrade Environmental Assessment (EA)
 - The DOE Site Office is finalizing the team charter.
 - Proposed Action/Project Information Checklists are being prepared. The FEL draft checklist has been started.
- EH&S Reporting is working with other laboratory staff to address other NEPA items, including actions related to the new CEBAF Center addition construction project.

Attachment

Administration Division Notes for EH&S Committee

For meeting of 4/4/2003

Facilities Management

Projects with EH&S Implications

• Retention Pond - To facilitate future site developments, a retention pond is required for storm water management. Reviewing A/E qualifications for selection of the design firm. (PM - Chandra)

Estimated Design Start Date: 6/02/03 Est. Construction Start Date: 2/02/04

- Widen Roads for Security Posts Develop a scope to widen Lawrence Drive and Onnes Drive to support the vehicle inspections required by the increased security. Site visit was held on 3/26. Proposals were submitted on 3/31 with an ECD of 4/25/03. (PM Chandra)
 - Note: Lab staff have expressed concerns about the safety of the guards in particular the possibility that they could inadvertently step back into the path of an outbound vehicle. Temporary measures (crash-cushion barrels and barricade rope) are in place pending the completion of the road widening.
- Central Chiller Utility (Energy project) Trenching work for piping has been delayed by wet ground conditions. Work in the Test Lab basement continues.
- Acid Neutralization System Building Phase I is complete except the grating for the trench. The start of Phase II has been delayed by up to three weeks because the location of neutralization equipment has not been finalized. (PM Chandra) Subcontract Completion Date: 6/20/03

ARC Building

Modification to ARC gas shed (install CMU partitions to segregate oxidizers from combustible gases) is complete. ARC university tenants are now all using the same vendor as JLab and are minimizing on-hand inventory to what can be properly stored in the shed.

Emergency Management

- The biennial Emergency Management Peer Review is scheduled tentatively for August 6-7.
- A meeting of the E.M. Subcommittee is scheduled for April 17. Agenda items include the peer review and upcoming exercises.

EH&S Training

A Safety Warden class was requested for five Accelerator staff members and is scheduled for 4/7 & 4/8. This follows a session that was held in January – the shortest time interval between sessions in a number of years. This could be an indication of growing interest in the course – either because of safety warden assignment turn-over, or interest in the course by supervisors as an EH&S overview. Does this suggest a need to put SAF901 back on the EH&S Training Calendar, say on a quarterly basis? If you have an opinion, please let me hear it.

Various Other Items

Administration (EH&S and Procurement) collaborated with Accelerator EH&S in the composition of the recently distributed message concerning safety footwear and the distinctions between its several electrical ratings.

EH&S and Facilities Management are preparing advance information that has been requested relating to the OSHA compliance visit later this year.